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eses ; induction in philosophy, indeed, will preclude the use of hypotheses. It is the philosophical development, though, that on the whole interests M. de Roberty rather than the idea of a scientific metaphysic. Instead, he tells us, of admitting the immediate action of the whole of positive science on the conceptions of the world, the majority of modern thinkers hold that one mere minimal part of our knowledge — the theory of cognition — suffices to explain the march of the philosophical development. This results from the notorious imperfection of social studies. Intellectual evolution can never really be considered apart from the conditions which constitute what we call a society. Society draws from its own bosom the persistent causes of its own development and change. The hierarchy of conceptions which is actually evolved consists in the four orders of knowledge : knowledge scientific, knowledge philosophic, knowledge æsthetic, and knowledge practical or technical — science, philosophy, art, industry ; into these four phases of evolution does intellectual evolution resolve itself. In this connection M. de Roberty sharply criticises Comte's law of the three stages of thought. M. de Roberty's notion of the end of philosophy being the union of finality and causality, is eminently suggestive as a description of the ultimate coincidence of abstract reflection and of scientific investigation which human knowledge ought to aim at. One wishes, though, that he had helped the reader more by making use, say, of the distinction between the form and the content of philosophy or of a philosophy. As to content, a philosophy can never be more than a systematization of the knowledge of a given epoch, but formally regarded philosophy ought to be able to lay down not an absolute system, but the outlines of such a system. One feels somehow that the author has not defined sharply enough the standard by which all philosophical development can be estimated as a thing in itself, even although no one would wish to separate that development from the general development of man or society by which it is influenced and which it influences. The book is a valuable contribution to the study of the thought of our time and evinces a masterly grasp and knowledge of philosophical problems and philosophical history.

W. CALDWELL.

Das Wahrnehmungsproblem, vom Standpunkte des Physikers, des Physiologen und des Philosophen. Beiträge zur Erkenntnistheorie und empirischen Psychologie. By Dr. HERMANN SCHWARZ. Leipzig, Duncker & Humblot, 1892. — pp. 408.

The problem of perception offers three remarkable features from the point of view of the physicist, physiologist, and psychologist respectively. The first finds that the sequences of the non-material world of

tones and colors can be derived with great precision from the laws of mechanical processes, like the vibrations of material particles of air and ether. The second finds that whatever stimulus is applied to a sensory nerve, the nerve always reacts with the same sort of sensation, and conversely, that if the same stimulus affects different nerves, the sensations will belong to different senses. The psychologist, lastly, finds that all the data of sense are instinctively and invariably referred to external existences, and never to the observer's internal condition. Not one of these facts could have been anticipated. The reduction of the brilliancy and variety of tones and colors to the mechanical processes of atoms is surprising. But after agreeing to it, it is no less surprising to discover the specific physiological functions of the sensory nerves, and to find that this does not invalidate the physicist's calculations. Lastly, it remains a mystery how consciousness obtains a knowledge of any existence external to itself. Moreover, the simplest explanations of these several facts are in conflict. We cannot call sense impressions effects of general mechanical processes, if they are at the same time effects of the special constitution of the organs; we cannot call them the latter if they are objective existences alien to consciousness. Hence the difficulty which Dr. Schwarz proposes to solve, and hence also the threefold division of his subject.

He starts from natural ("naïve") realism as the basis of all the scientific theories. In it he distinguishes a *metaphysical assertion* and a *methodological procedure*, which are really independent of each other. The procedure asserts three dogmas. (1) It regards touch as the primary sense, and its data as informing us of the real nature of things, and interprets the deliverances of the other senses with reference to touch. This privileged position of the data of touch is due to their relative permanence, while those of the other senses are secondary, because variable. (2) Of these variable data, those which are presented under the customary conditions of observation are regarded as informing us of the *properties* of things, continuing to exist unperceived, while unwonted and abnormal impressions are treated as transitory appearances. (3) Permanent alterations in the "properties" of things are explained by *causation* — as effects of the action of other things without the recognition of any interaction. Such is the method whereby natural realism supports its metaphysical assertion of external things independent of our consciousness.

The physicist transforms the world as constituted by natural realism by a method of his own. (1) Remaining under the influence of the realistic dogma as to the supremacy of the tangible, he reduces the "properties" of things to mechanical processes and regards them as the *signs* of the latter.

This method is independent of his metaphysic, which is substantially that of Locke, and distinguishes between the properties of matter which are primary and given by the objects of touch, and those which are secondary like sounds and colors, and *subjective*, *i.e.* effects of the motions of atoms, *etc.*, on consciousness. This assertion leads to a conflict with the principle of the conservation of energy, since the physical forces are already equated in the motions of the atoms, and the soul, therefore, must create the subjective colors, tones, *etc.*, out of nothing.

But this *subordination* of the data of the other senses to those of touch is a practically convenient method of treating them, rather than a valid derivation, and makes the generation of the qualitative differences of the senses from the quantitative differences of atomic vibrations, *etc.*, incomprehensible. This difficulty is created by ignoring the psychological *co-ordination* of the various senses. In the order of knowledge, moreover, tones and colors are prior to atomic and ethereal vibrations. Lastly, it is on evolutionist grounds improbable, that if vibrations devoid of color, light, and temperature had been the original fact, they would have been so variously transformed by the senses.

Hence, as a matter of metaphysics, the physicist has either to become an idealist and admit the subjectivity of the data of touch also, or to assert the objectivity also of sounds and colors. The latter view is more natural, and harmonizes with the *method* of physics, if a *parallelism* between, *e.g.* vibrations and colors is substituted for the *causation* of the second by the first.

The second realistic dogma, that reality belongs only to the normal appearances of things, leads the physicist to assert the dependence of *some* sounds, colors, *etc.*, on the physiological condition of the organs of sight, hearing, *etc.*, in order to account for abnormal appearances like after-images, fused tones, *etc.* Science cannot ignore them simply because they are practically unimportant, and so physiology is appealed to. Thus the physiological treatment of perception is throughout based on the physical explanation which it supplements, and so admits neither of a special physiological method nor of a metaphysic. These points are treated in a very detailed and complicated discussion, which shows that physical explanations will go much further in physiology than has generally been admitted, and that the assertion of peculiar and specific physiological activities of the sense organs is untenable. Nevertheless, the physical theory fails to explain, *e.g.* the dimness of indirectly seen objects (for which a psychological explanation must be adduced) and can provide no satisfactory theory of color. In the last resort this failure is due to the defects of the mechanical theory itself.

The inference from all this is that the metaphysic, though not the method, of physical science has broken down. But on the other hand

the metaphysic, if not the methodology, of natural realism may be maintained. Psychologically, realism is tenable ; for (1) pure sensations, as yet unassociated and unrelated, must underlie all psychic combination ; (2) externality is an original datum in sensation. Philosophically, an abandonment of realism is not *necessitated* by the objections of idealism. These objections Dr. Schwarz discusses upon the old lines of the thing-in-itself, which he will not permit his opponents to disclaim (pp. 385 *ff.*), but hardly so as to convince one that he has fully appreciated their strength. The book concludes with a declaration (p. 406) that it is best and simplest to regard perception as an ultimate process which does not admit of further analysis, and leads to a trustworthy, though not complete, cognition of an existence independent of consciousness.

From the philosophic point of view the chief merit of Dr. Schwarz's learned book seems to lie in the fulness of the illustration it affords of the scientific inadequacy of the obsolete metaphysic which still serves as the working theory on which scientific procedure is based. And considering the practical purpose and mutual isolation, which have so long prevailed in the physical sciences, their inconsistencies and inadequacies will seem pardonable. Still Dr. Schwarz has done good service by pointing out these difficulties specifically and in detail. We may thank him also for his admission that a *possible* solution of the difficulty lies in the direction of a comprehensive idealistic metaphysic, all the more if his own proposal of a reversion to primitive realism should prove unacceptable. His delusion on this subject seems to be largely due to the fact that he has substituted for the actual opinions of the "plain man" with all their grotesque crudity, an expurgated version thereof, which philosophers have constructed for purposes of convenience in academic discussion, and entitled "Natural Realism," much as they have constructed the two varieties of "subjective idealism" which Dr. Schwarz ascribes to Berkeley and Fichte. The truth is, that the plain man's view is very different from Dr. Schwarz's realism, and ten times more inconsistent and incoherent than the physicist's view which is developed from it. And though our author's view is enabled to maintain some degree of coherence, until it is brought face to face with all the facts, and asked, *e.g.* to explain what is the reality perceived in dreams or in the hallucinations and illusions of delirium (what can the doctrine of the non-deceptiveness of the senses make of such facts?) a final collapse seems inevitable as soon as criticism is directed upon it in its turn. It would hardly be necessary even to ask what is meant by "independent of, or external to" consciousness. The truth seems rather to be, that the effort to understand the universe starts much further back than Dr. Schwarz's pseudo-natural realism, in a chaos where fact, illusion, and fancy are not yet distinguished, and where there is as yet no pretence at coherence. This amorphous mass of primitive

perplexity is overlaid with successive strata of metaphysical interpretation, and these deposits will go on with growing precision and refinement until a *completely* congruous account of all the facts is reached. But though it is well to be reminded of the foundations on which we must build, and of the primary data our solutions must satisfy, the truth surely lies ahead of us and not behind us.

F. C. S. SCHILLER.

Die Bedeutung der theologischen Vorstellungen für die Ethik.

Von Dr. WILHELM PASZKOWSKI. Berlin, Mayer & Müller, 1891.—
pp. v, 92.

This work is in the main historical, the sources being Waitz, Pfeleiderer, Zeller, Réville, and the other well-known writers on the history of religion. The first part deals with those conceptions of the Godhead which in the various religions tend to produce moral conduct; the second investigates the influence of the dogmatic and ritual elements upon moral conduct.

In the nature-religions, morality and religion are not connected. They become fused with the development of civilization. The Egyptian religion introduces the conception of a moral order and righteousness which the gods maintain. A further impulse to morality was given by the elaboration at the hands of the Egyptians of the idea of future life and retribution. Brahmanism makes a systematic application of theology to life, and consequently leaves no place for morality. The Iranian peoples, on the contrary, brought religion into the service of an active morality; theirs was a religion of pure morals, a religion of struggle, of joy in activity; but like all state religions, it suffered from the enthronement of forms and ceremonies. Buddhism contains a deep moral element. In emphasizing the suffering of the world, it brings to the forefront of consciousness the duty of benevolence. Greek religion contributed less to morality than did political life. Besides, the Greeks judged everything from the æsthetic standpoint, the good being the beautiful, and the bad the ugly. Roman religion had a purely practical utilitarian tendency, and consequently contributed little to the growth of pure morality.

Passing now from polytheistic to monotheistic religions,—and Nägelsbach has observed that the search for the one God was the living pulse in the entire religious development of antiquity,—the author finds that among the people of Israel, the relation of morality to religion presents an altogether different aspect. Every moral act is religious, and ought to conform to the righteous and holy will of God. According to Mohammedanism, man derived his entire worth from his